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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,260	10/10/2003	Nabeel Agha Riza	062699-038	1725

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EXAMINER
TRA, TUYEN Q

ART UNIT	PAPER NUMBER
2873	

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	**Application No.** 10/684,260	**Applicant(s)** RIZA ET AL.
	Examiner Tuyen Q Tra	**Art Unit** 2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2004*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-18* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *10 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
  Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's arguments with respect to claim 14 have been considered but are moot in view of the new ground of rejection.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites "a variable polarization control device disposed in at least one of the first bidirectional pathway and the second-bi-directional pathway." Which fails to show how the polarization control device relates to other parts of the structure claim 1 or its relationship with the rest of claim 2. Correction is required.

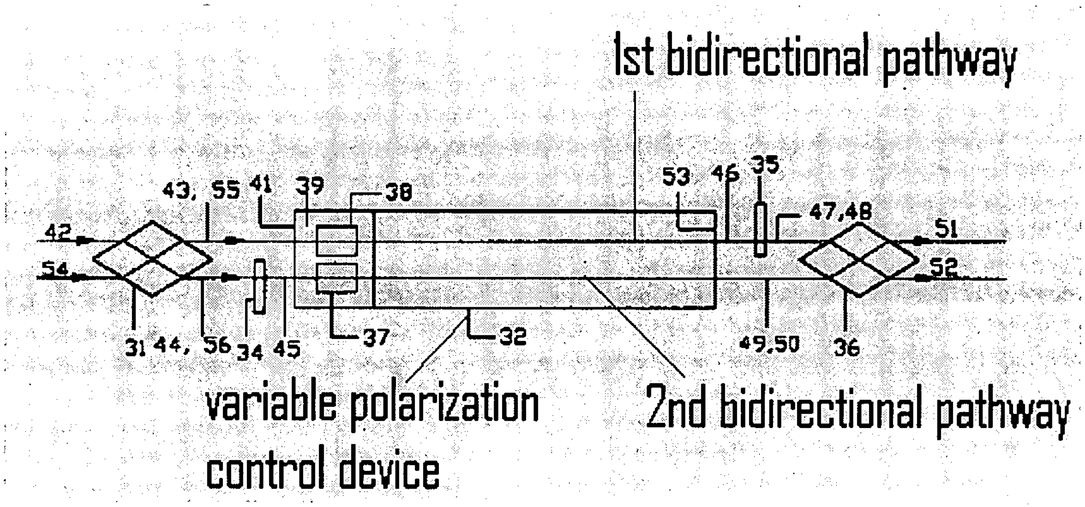
Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang (U.S. Pat. 6,016,216 A).

a) With respect to claim 2, Chang discloses a reflection-type optical circulation utilizing a lens and birefringent plates in Figure 2 comprising of a beam splitter (item 31) for splitting an optical beam to produce a first beam portion and a second beam portion; a first bi-directional pathway for conducting the first beam portion; a second bi-directional pathway for conducting the second beam portion; and a beam redirecting means (item 36) for redirecting the first beam portion back along the second bi-directional pathway and for redirecting the second beam portion back along the first bi-directional pathway (see below figure), a variable polarization control device (item 32) disposed in at least one of the first bidirectional and the second bidirectional pathway.


1st bidirectional pathway
43, 55
41
39
38
53
46
35
47,48
42
51
54
52
31
44, 56
34
45
37
32
49,50
36
variable polarization control device
2nd bidirectional pathway

b) With respect to claim 1, Chang discloses an apparatus for reflection type optical circulation utilizing a lens and birefringent plates in Figure 3 and further with method of directing a first optical beam in a forward direction in a first pathway, and directing the first optical beam in a reverse direction in a second optical pathway; and directing a second optical beam in a forward direction in the second pathway, and directing the second optical beam in a reverse direction in the first optical pathway; disposing a variable polarization control device in at least one of the first pathway and the second pathway so that the light propagation differences in the polarization medium of the device are equalized.

4. Claims 1-8 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Cao (U.S. Pat. 6,236,506 B1).

a) With respect to claim 2, Cao discloses a reflection-type optical circulation utilizing a lens and birefringent plates in Figure 3 comprising of a beam splitter for splitting an optical beam to produce a first beam portion and a second beam portion; a first bi-directional pathway for conducting the first beam portion; a second bi-directional pathway for conducting the second beam portion; and a beam redirecting means for redirecting the first beam portion back along the second bi-directional pathway and for redirecting the second beam portion back along the first bi-directional pathway and a variable polarization control device (item 312) disposed in the first and second bidirectional pathway (see below figure)

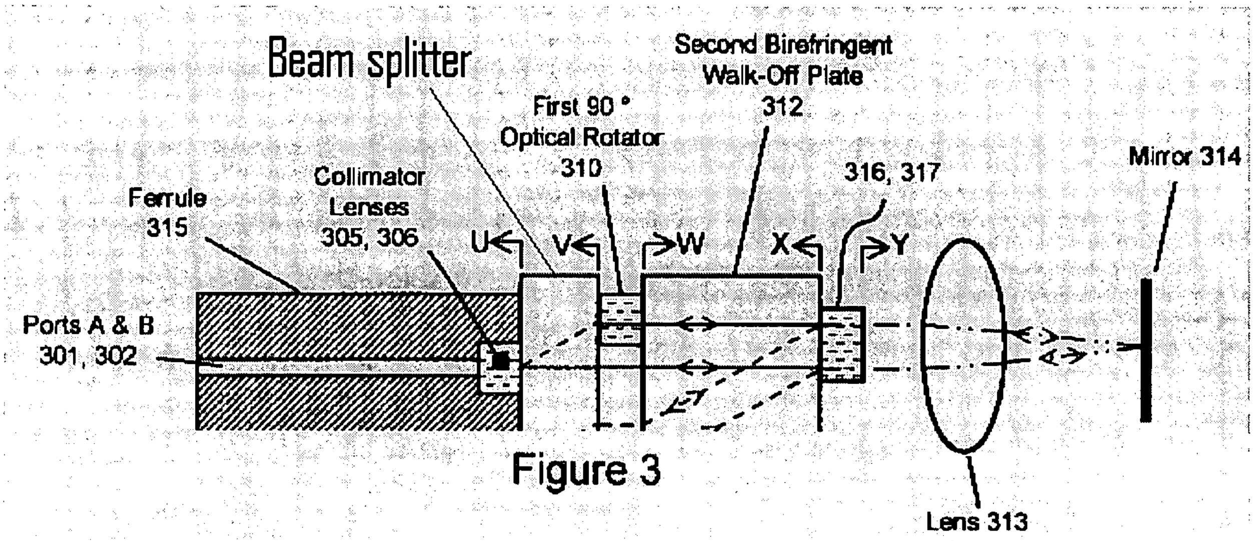

Beam splitter
Second Birefringent Walk-Off Plate 312
First 90 ° Optical Rotator 310
316, 317
Mirror 314
Collimator Lenses 305, 306
Ferrule 315
U
V
W
X
Y
Ports A & B 301, 302
Lens 313

Figure 3

b) With respect to claim 1, Cao discloses an apparatus for reflection type optical circulation utilizing a lens and birefringent plates in Figure 3 and further with method of directing a first optical beam in a forward direction in a first pathway, and directing the first optical beam in a reverse direction in a second optical pathway; and directing a second optical beam in a forward direction in the second pathway, and directing the second optical beam in a reverse direction in the first optical pathway.

c) With respect to claims 3-8, Cao further discloses wherein the beam splitter comprises a beam displacement prism; wherein the beam redirecting means comprises a total internal reflection prism; wherein the beam redirecting means comprises a mirror; wherein the beam redirecting means further comprises a lens for directing the first beam portion and second beam portion to the mirror; wherein the beam directing means further comprises a path length compensator disposed in at least one of the first beam portion and the second beam portion; further comprising a half wavelength plate disposed in at least one of the first beam portion and the second beam portion between the beam splitter and the beam redirecting means.

d) With respect to claims 11-13, Cao further disclose wherein a liquid crystal light valve disposed in at least one of the first bi-directional pathway and the second bi-directional pathway; an optical circulator for conducting the optical beam to the beam splitter and redirecting a processed beam returned from the beam splitter; a fiber grin lens disposed in the optical beam between the circulator and the beam splitter.

5. Claims 2, 9, 10 and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Lu et al. (U.S. Pat. 6,154,581 A).

a) With respect to claim 2, Lu et al. discloses a reflection-type optical circulation utilizing a lens and birefringent plates in Figure 4A comprising of a beam splitter (item 420) for splitting an optical beam to produce a first beam portion (item 442) and a second beam portion (item 444); a first bi-directional pathway for conducting the first beam portion; a second bi-directional pathway for conducting the second beam portion; and a beam redirecting mean (428 & 430) for redirecting the first beam portion back along the second bi-directional pathway and for redirecting the second beam portion back along the first bi-directional pathway (see figure 4).

b) With respect to claims 9 and 10, Lu et al. further discloses wherein the variable polarization control device comprises a first acousto-optical device disposed in the first bi-directional pathway and a second acousto-optical device disclosed in the bidirectional optical pathway; wherein the first acousto-optical device and the second acousto-optical device comprise a single device.

c) With respect to claim 14, Lu et al. discloses a multiple port, fiber optic circulator in Figure 4a comprising of beam splitter (item 420) for splitting an optical beam to produce a first beam portion (item 442) and a second beam portion (item 444); an acousto-optical device (item 422) comprising a first bidirectional pathway for conducting at least a portion of the first beam and a second bidirectional pathway for conducting at least a portion of the second beam; and a beam reflector (combined items 428 & 430) disposed adjacent the acousto-optical device (item 422) and configured to reflect the at least a portion of the first beam back along the second bidirectional pathway and for redirecting the at least a portion of the second beam back along the first bidirectional pathway and for redirecting the at least a portion of the second beam back along the first bidirectional pathway.

d) With respect to claims 15-18, Lu et al. further disclose wherein the beam reflector comprises a total internal reflection prism; wherein the beam reflector comprises a mirror; wherein the beam reflector further comprises a lens for directing the at least a portion of the first beam and at least a portion of the second beam to the mirror; wherein the beam reflector further comprises a path length compensator disposed in at least one of the at least a portion of the first beam and at least a portion of the second beam.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyen Tra whose telephone number is (571) 272-2343. The examiner can normally be reached on Monday to Thursday from 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps, can be reached on (571) 272 - 2328. The fax number for this Group is (703) 872-9306.

tt

December 8, 2004

Hung Xuan Dang
Primary Examiner